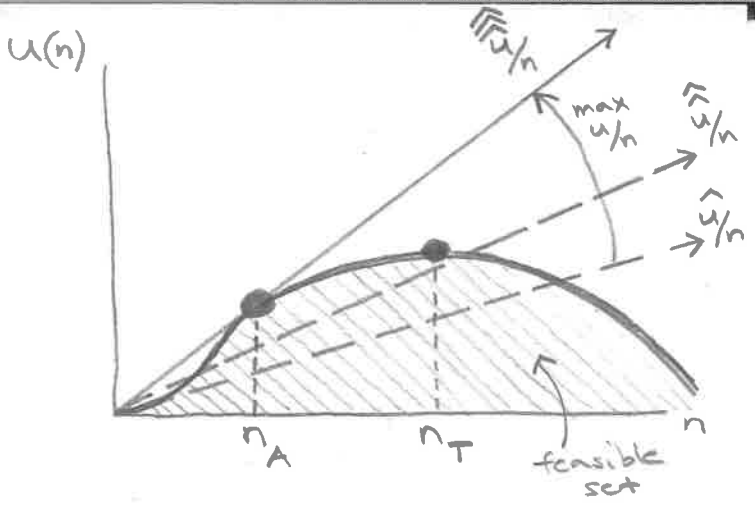

$$\max_n \; u(n)/n$$

FOC: $\left(u(n)/n\right)' = 0$

↓ quotient rule

$$\frac{n \cdot u' - u}{n^2} = 0$$) multiply both sides by n^2

$$n \cdot u' - u = 0$$) transpose & then divide by n

$$\boxed{u' = u/n}$$

slope of total utility curve = average utility